

DEPARTMENT OF NATURAL RESOURCES
Environmental Services Division

MEMORANDUM

DATE: November 20, 2017

TO: Thabit Hamoud, Wastewater Engineering, IDNR, Des Moines, IA

FROM: Alison Manz, Environmental Specialist, FO 4, IDNR 

RE: Site Survey for Proposed Wastewater Land Application Sites
Essentia Protein Solutions, NPDES Permit No. 8300100, Work Request No. 4080,
Staff Action No. 122800

On September 21, 2017, the Department of Natural Resources (DNR) Field Office 4 in Atlantic received a work request from the DNR Engineering Section in Des Moines to conduct a site survey for wastewater land application from the Essentia Protein Solutions industry to fields labeled as Sites 7, 10, and 11. On November 15 and 16, 2017, I completed a site survey for the three fields labeled as Sites. Erik Johnson, Mechanical Engineer with Essentia, was available during the site surveys.

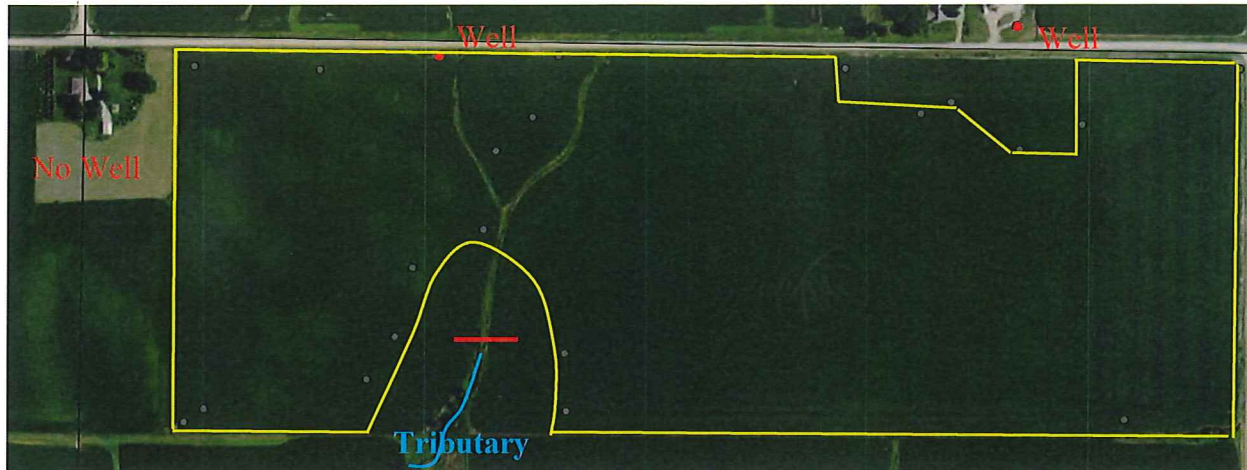
The proposed application field boundaries are not the same as the boundaries for the entire field (i.e. fence line to fence line) because of required separation distances. Required distances per Iowa Wastewater Facilities Design Standards Chapter 21, land application of wastewater subparts 21.1.1.1 & 21.1.1.2 is as follows:

- 300' to dwellings or public use areas
- 300' to residences, buildings, etc.
- 400' to any existing potable water supply well
- 300' to any continuous flowing stream or other physiographic feature that may provide direct connection
- 50' to property lines

The three fields had been previously staked and GPS coordinates obtained by Essentia staff and Essentia's engineer, Bolten and Menk. It should be noted that the field labeled as site 10 was not completely staked on the date of the survey. I returned the next day to verify the remaining portion of site 10 as well as to verify wells at the other two fields. I obtained distances from the stakes using a laser range finder and by using a GPS application developed by the GIS Section of the DNR.

A map outlining the three fields was submitted to the DNR; however, the GPS coordinates obtained by Essentia were not included. **The GPS coordinates should be submitted and included in the operation permit.** The GPS coordinates will aid with the installation of stakes before application.

The aerial photo below documents the proposed field, labeled as Site 7 (located in the NW ¼, Section 33, Center Township, Shelby County).



According to the engineering report, this field consists of 111.2 acres, 83.9 acres to be used. However, the engineering report did not account for a well located at 1528 800th Street (northeast well on aerial photo). The field near this well had to be restaked and another survey conducted the next day to verify distances. **Correct acres should be submitted and accurate acres included in the operation permit for this field.**

I verified the location of the unnamed tributary of the East Branch of the West Nishnabotna River and where the tributary begins in the field. The photos below document my observations and the aerial photo above documents the approximate location.



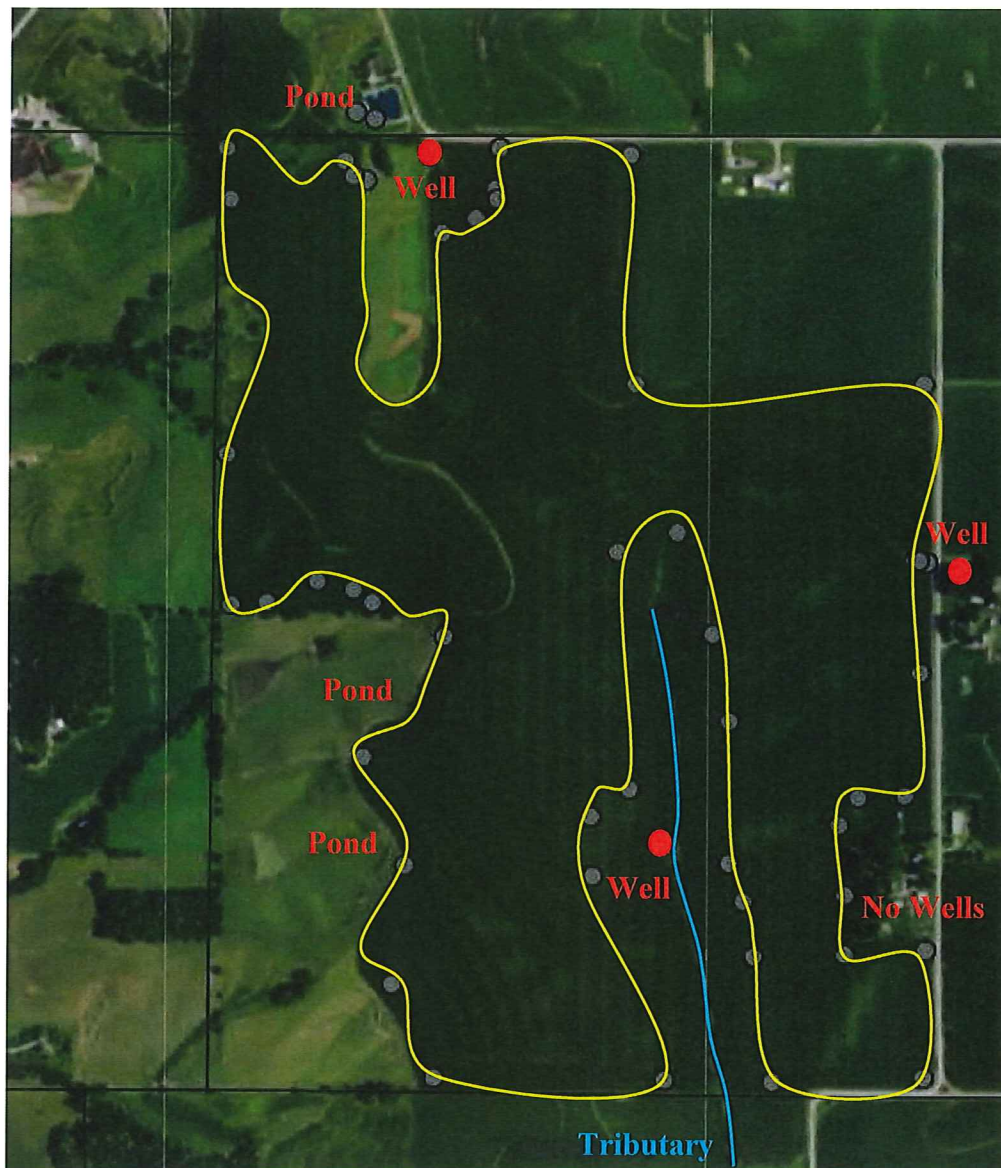
Photo 1: Looking north



Photo 2: Looking south

I verified that all separation distances have been met.

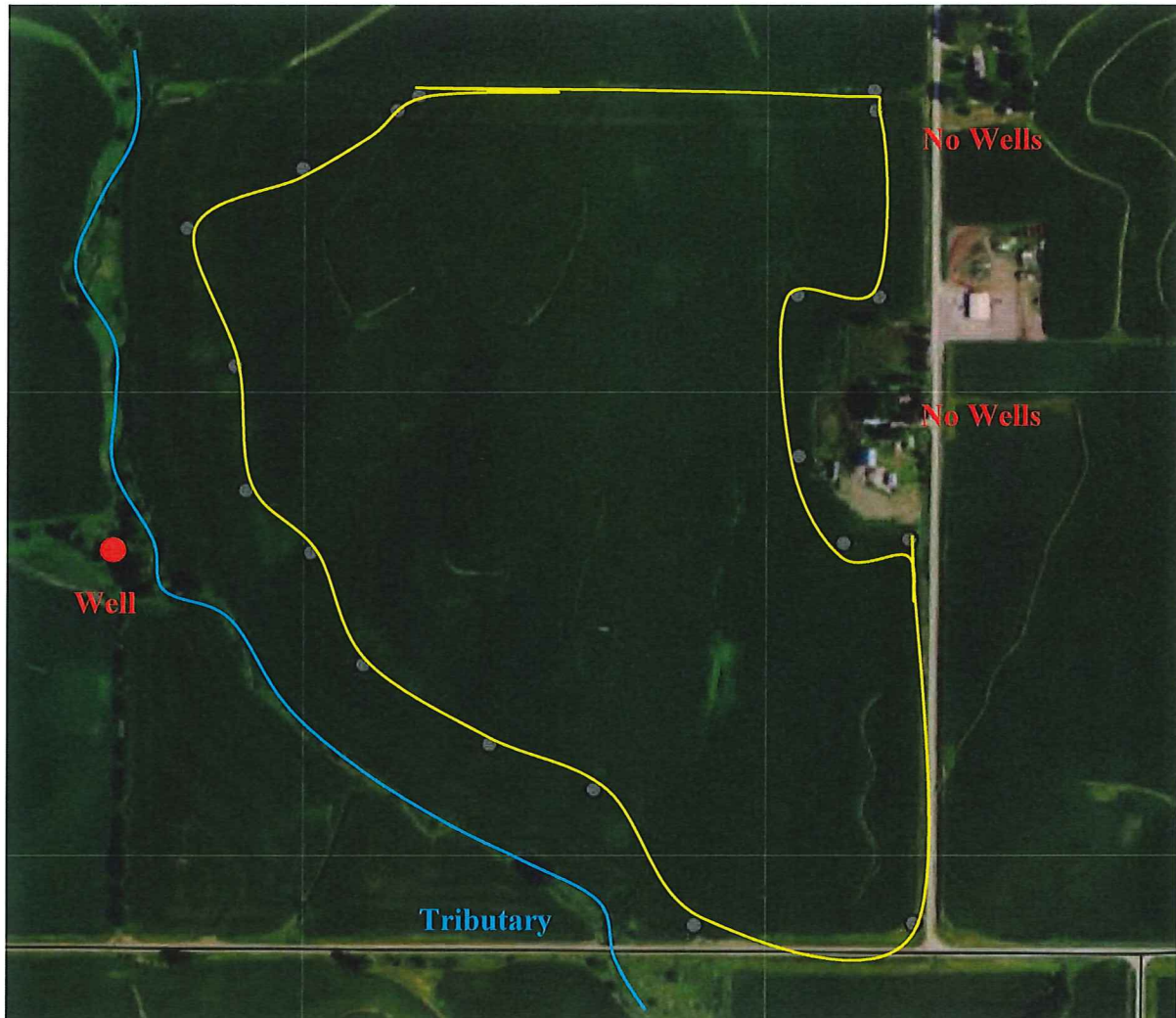
The aerial photo below documents the proposed field, labeled as Site 10 (located in the NW ¼ and the SW ¼, Section 32, Center Township, Shelby County)..



According to the engineering report, this field consists of 366 acres, 297.7 acres to be used. However, the engineering report did not account for three wells, one located on the north side of the field, one located on the west side of a tributary of the East Branch of the West Nishnabotna River, and one located at 723 Oak Road. A couple of the stakes had to be relocated while I was on-site in order to meet the required separation distances; however, Essentia staff obtained new GPS coordinates for these stakes. Additionally, a small portion of the field, located along the north portion is in pasture. **Because the proposed application is injection or incorporation, correct acres should be submitted and accurate acres included in the operation permit for this field.**

I verified that all separation distances can be met.

The aerial photo below documents the proposed field, labeled as Site 11 (located in the SW ¼ and SE ¼, Section 33, Center Township, Shelby County)..



According to the engineering report, this field consists of 160.4 acres, 99.1 acres to be used. Although the engineering report did not account for one well located on the west side of a tributary of the East Branch of the West Nishnabotna River, all distances can be met.

I verified that all separation distances can be met.

SUMMARY

- **All separation distances for all three fields have been met. However, updated maps listing all correct GPS coordinates as well as accurate acres to be applied should be submitted and included with the operation permit.**

ARM/ww/harlan111517.ww.essentia land application site survey.manz.doc

cc: Wastewater Records Center, Des Moines (Shelby County)
Facility File